

This listing of the claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A method to seal a porous dielectric comprising:
exposing the porous dielectric material that comprises reactive groups adjacent a surface of the material to a coupling agent comprising phosphogene;
and
wherein the coupling agent reacts with the porous dielectric material to form coupling structures linked to the dielectric material, wherein the coupling structures are exposed to a sealing agent comprising a crosslinking agent, wherein the crosslinking agent comprises a multifunctional alcohol.

Claims 2-11 (Canceled).

12. (Currently amended) A method to seal a pore in a dielectric material structure comprising:
introducing a silane coupling reagent comprising a thiol end cap and at least one alkoxy side group reactive to SiOH at the surface of a pore; ~~and~~
introducing an oxidizing agent to facilitate formation of disulfide bonds between adjacent oxidized thiol end caps-, and wherein a silicon atom of the coupling reagent is coupled to a sulfur atom of the thiol endcap, and a flexible chain is between the silicon atom and the sulfur atom,
wherein the flexible chain comprises a portion of a bridge structure that is capable of sealing the pore.

13. (Currently amended) The method of claim 12 wherein the silane coupling agent comprises a silicon atom, and wherein the thiol end cap is coupled to the silicon atom by a substantially long chain of CH₂ ~~groups~~ molecules.

14. (Currently amended) The method of claim 13 wherein the thiol end cap is coupled to the silicon atom by at least ~~about~~ 4 CH₂ ~~groups~~ molecules.

15. (Original) The method of claim 12 wherein the at least one alkoxy side group is selected from the group consisting of OCH₃, O-ethyl, O-methyl, O-tertbutyl, and O-isopropyl.

16. (Original) The method of claim 14 wherein the silane coupling reagent comprises three OCH₃ side groups.

17. (Original) The method of claim 12 wherein the oxidizing agent comprises formaldehyde.

Claims 18-24 (Canceled).

25. (Currently amended) A method to seal an exposed pore in a dielectric material comprising:

exposing the exposed pore to a coupling agent;

forming links coupling the coupling agent to a surface of the pore;

exposing the exposed pore and the coupling agent to an oxidizing agent; and

forming a barrier across the pore, wherein the barrier comprises a barrier molecule comprising a silicon atom coupled to a surface of the pore, a sulfur atom, and a flexible chain between the silicon atom and the sulfur atom, wherein the flexible chain comprises a portion of a bridge structure that is capable of sealing the pore.

26. (Canceled)

27. (Original) The method of claim 26 wherein forming a barrier across the pore comprises forming a disulfide bond between a sulfur atom in the end cap of a first barrier molecule and a sulfur atom in the end cap of a second barrier molecule.

28. (Currently amended) The method of claim 26 wherein the flexible chain comprises a substantially long chain of CH₂ groups ~~molecules~~.

29. (Currently amended) The method of claim 28 wherein the substantially long chain of CH₂ molecules comprises four CH₂ groups ~~molecules~~.

30. (Original) The method of claim 26 wherein the surface coupling group comprises an OCH₃ group.

31. (Original) The method of claim 25 wherein the oxidizing agent comprises formaldehyde.